CollgeWar
An AR mobile game

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Contents

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• Design
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Motivation

- Key elements of the original game.
  - Multiplayer
  - Attack others by throwing
  - A special map

- Other Requirements
  - Mixed reality

- Goal
  - Develop an AR, multiplayer online game with CUHK elements including the campus and college systems.

- Platform
  - Android

- Target Player
  - CUHK students and stuffs
Design

Modules
• College
• Map
• Collect
• Attack & Defense

A forced circulation for players
Design-College

• Multiplayer game
• Nine colleges of CUHK
• Players’ sense of substitution and belonging
Design-Map

• Main Scene
• Location-based
• Contents 3D buildings
  • Neutral
  • Occupied
• Different type of regions
  • Road
  • Wood & Grass
  • Water
  • Playground
Design-Collect

• Four types of materials (relating to the map)
  • Wood material – Wood & Grass area
  • Water material – Water area
  • Road material – Road area
  • Power material – Playground area

• Different collecting ways in AR

• Occupied buildings will also produce materials for players
Wood Material

- Simulated tree cutting
- Swipe fingers across the screen as quickly as possible
Water Material

- Simulated fishing
- Control the bar stopping at red area by clicking on the screen.
Road Material

- Simulated mineral mining
- Point the screen at the mineral and click
Power Material

• Generated randomly around players
• Turn phones around to find powers and click on them to collect
Design-Collect

• Four types of materials (relating to the map)
  • Wood material – Wood & Grass area
  • Water material – Water area
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  • Power material – Playground area

• Different collecting ways in AR

• Occupied buildings will also produce materials for players
Design-Attack & Defense

- Buy weapons and defense installations in shop
- Physically be around buildings.
- Players can only attack others’ buildings and defense their own buildings.

<table>
<thead>
<tr>
<th>Weapons</th>
<th>Damage point</th>
<th>Damage mode</th>
<th>Costing materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrow</td>
<td>10</td>
<td>Single</td>
<td>Wood+1 + Water+1</td>
</tr>
<tr>
<td>Bomb</td>
<td>5</td>
<td>AOE</td>
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Four kinds of weapons

<table>
<thead>
<tr>
<th>Defense</th>
<th>Life Point</th>
<th>Function</th>
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<tbody>
<tr>
<td>Shield</td>
<td>100</td>
<td>Defense main building</td>
<td>Power+1</td>
</tr>
<tr>
<td>Wall</td>
<td>50</td>
<td>Block damage</td>
<td>Wood+5 + Mineral+5</td>
</tr>
<tr>
<td>Alarm</td>
<td>1</td>
<td>Alarm players</td>
<td>Wood+2 + Water+2 + Mineral+2</td>
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Three types of installations
Attack-Arrow

- Hit single object with higher damage
- Touch the bow and change direction and leave fingers to shoot.
Attack-Bomb

- Hit an area with lower damage
- Touch the catapult and slip to shoot a bomb
- Speed and direction decided by slipping distance and speed
Defense-Shield

• Can only protect the main building.
• Main building will not be hit as it exists.
Defense-Wall

• Placed around main building.
• Move and rotate walls freely.
• Increase the height and life point of walls.
Attack-Alarm

- Attached to both main building and walls.
- Alarm players if their buildings are under attack.
- Not hittable by weapons.
- Destroyed as the attaching object destroying.
Demo Video
Summary and Future Work

• Replace location-based property.
• Control the game balance.
  • Number of players varies from colleges.
  • Numerical design.
• Implement different skills for colleges.
• Implement chat system.
• Add functional use of the game.
Motivation
Basic Elements

• Multiplayer
• Attack others by throwing
• A special map
• Mixed reality
goal

• Develop an AR, multiplayer online game with CUHK elements including the campus and college systems.
• Target platform: Android
• Target players: CUHK students and stuffs
Design
Modules

- College
- Map
- Collect
- Attack & Defense

A forced circulation for players
Design-College

• Multiplayer game
• Nine colleges of CUHK
• Players’ sense of substitution and belonging
• Once chosen, can’t change.
• Distinguished by icons and colors
Design-Map

- Main Scene
- Location-based
- Contents 3D buildings
  - Neutral
  - Occupied
- Different type of regions
  - Road
  - Wood & Grass
  - Water
  - Playground

Map overview
Design-Collect

• Four types of materials (relating to the map)
  • Wood material – Wood & Grass area
  • Water material – Water area
  • Road material – Road area
  • Power material – Playground area

• Different collecting ways in AR
  • Enter collect scene and find a plane to place virtual objects.
  • Follow different instructions to collect materials.
Wood Material

• Simulated tree cutting
• Swipe fingers across the screen as quickly as possible
• Number of materials players obtain is related to count of cutting.
Water Material

- Simulated fishing
- Control the bar stopping at red area by clicking on the screen.
- Number of materials players obtain is related to the stop position.
Road Material

- Simulated mineral mining
- Point the screen at the mineral and click
Power Material

- Generated randomly around players
- Turn phones around to find powers and click on them to collect
Design-Collect

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